In a Rut?

ACCIDENT INVESTIGATION DIVISION
U.S. Army Combat Readiness Center

It's a situation all Soldiers have seen at some point: a HMMWV, FMTV, or other vehicle mired in mud or a tank with its nose buried in a ditch. Anyone who's ever been a crewmember in a stuck vehicle has felt the joy at seeing a recovery team coming their way. That joy can be short lived, however, if crucial steps and checks aren't completed before the recovery operation begins.

A good recovery effort goes something like this. The wrecker lines up with the stuck vehicle. A ground guide steps out of the truck into a position clear of vehicle movement and makes eye contact with the wrecker's driver. (Eye contact between the ground guide and driver must be maintained throughout vehicle movement.) Using predetermined hand and arm signals, the ground guide directs the "puller" into place.

The recovery crew attaches and inspects the towing device, be it chains, rope, cable, or a tow bar. The ground guide then directs the wrecker to inch forward to add tension to the chains until they're tight and the slightest amount of tension is placed on the mired vehicle. Both drivers have a quick discussion about signals and mount their vehicles.

By now the ground guide is standing opposite the direction of travel and farther back than the length of the chains. He ensures all personnel are clear and gives hand and arm signals for both vehicles to move forward simultaneously. Both trucks move slowly at first before the stuck vehicle is finally freed. The engines then are turned off, the brakes applied, and the chains removed, allowing both crews to continue their missions.

The scenario above describes how a recovery operation should be conducted. In some real-world situations, however, Soldiers improvise with materials or skip steps, creating a risky situation for everyone involved in the operation. A recent accident in theater illustrates this point.

A Soldier was killed while helping recover a contractor truck loaded with concrete t-walls stuck in a gravel pit. The personnel attempting to free the truck initially tried to tow the vehicle with another truck but were unsuccessful. They called in a second vehicle and daisy chained the two trucks to the stuck vehicle to maximize pull. As the trucks moved forward and strained the chains, a link broke and flew through the air, hitting a Soldier in the neck. Although medics provided immediate care and the Soldier was MEDEVACed to the nearest medical facility, he died a short time later.

Most recovery-related accidents can be attributed to either backlash or acceleration impact, which is believed to have caused the accident above. If one vehicle increases its speed while the other maintains its speed, excessive stress is placed on the towing device. Backlash occurs when the towing device breaks free from its anchor or snaps altogether, whipping around to strike anything or anyone in its path.

So, what's the right way to conduct these operations? The answer can be found in "the books." Field Manual (FM) 9-43-2, *Vehicle Recovery Operations*, is currently under review and will be updated in the near future, but it's still the Army's official policy and contains the guidelines for these type missions. Soldiers must study up and consider several hazards before linking up to conduct a recovery operation.

First, ground guides can mean the difference between an efficient recovery mission and a complicated accident. In 2004, an NCO was killed when a recovery vehicle backed over him during his unit's final convoy out of Iraq. The young driver had conducted literally hundreds of similar missions without incident while deployed, but he failed to use a ground guide during the fatal operation. Eye contact with personnel on the ground and others around you is critical during recovery operations.

Another consideration is holdback vehicles, which are used when the vehicle being towed is heavier than the pulling vehicle

or any time cables or chains are used for towing. The holdback vehicle provides drag for the mired vehicle and prevents it from contacting the tow vehicle.

Selection of proper equipment is essential to safe recovery. Younger Soldiers sometimes get a little eager to complete their missions and grab the first chains available. When they go to connect them, someone older and wiser usually redirects them to find the proper size chains. All Soldiers must know the capabilities of their equipment, no matter how big or small it might seem.

It's critical that supervisors inspect rigging before every recovery mission. Are the hooks for the tow chains positioned with their openings up or down? Are the chains rated to tow the weight of the stuck vehicle? Are the chains or tow bars attached properly, with the right shackles, and at the right locations on the vehicles?

Pre-mission briefs and risk assessments are essential and must be conducted before every operation. Likewise, leaders should conduct a review of FM 9-43-2 from time to time with their Soldiers, especially those new to the unit. The FM might be due for revision, but it's still the best starting point for conducting successful recovery efforts.

Here are a few common questions Soldiers should think about before their next recovery operation.

What can happen if I don't take the slack out of the towing device before pulling the mired vehicle?

Acceleration impact can occur because all the pulling vehicle's forward momentum is added to the resistance of the mired vehicle, resulting in excessive strain on the chain, rope, or cable, which might break.

Where should my Soldiers stand when we start pulling?

According to FM 9-43-2, Soldiers should stand back at least the length of the towing device and in the opposite direction of travel. Experienced recovery crews recommend standing back at least double the length of the chain or cable. Either way, Soldiers must pay close attention to their surroundings and maintain situational awareness.

What are the dangers during recovery?

If chains are used, the hook could straighten or a link might break, resulting in a projectile that can injure personnel or damage equipment. In addition, the mired vehicle might shift or move freely if the towing device breaks. Vehicles also might shift from side to side during towing in muddy environments. Soldiers must stay clear of the moving vehicles and pay close attention to what's going on around them so they can react appropriately. Many other hazards can be found in chapter 4 of FM 9-43-2.

What are the resources for hand and arm signals?

FM 21-60, *Visual Signals*, is the primary source. Several other FMs further specify signals for technical jobs. Appendix C of FM 9-43-2 also details hand and arm signals for recovery operations.

Do I have the proper equipment for this mission?

The towing device must be rated equal to or higher than the weight of the mired vehicle. The pulling vehicle also must be heavier than the towed vehicle; if not, a holdback vehicle must be used. Chapter 4 of FM 9-43-2 explains the methods for calculating ratios and formulating resistance.

How fast should I travel when towing?

First, you must know the specifications and capabilities of the vehicles you're working with. Also consider the terrain to be covered, weather, time of day, and road conditions. In short, vehicle speed is situation dependent.

Vehicle recovery is a fact of life in our Army, and the Soldiers that perform this mission are a vital part of the fight. There's great relief for everyone involved when the work is done and all equipment and personnel are safe and mission ready. Make sure all your recovery efforts are successful by following the books and using Composite Risk Management before pulling out the chains. Own the Edge!

Comments regarding this article may be directed to the U.S. Army Combat Readiness Center (CRC) Help Desk at (334) 255-1390, DSN 558-1390, or by e-mail at helpdesk@crc.army.mil. The Accident Investigation Division may be reached through CRC Operations at (334) 255-3410, DSN 558-3410, or by e-mail at operationssupport@crc.army.mil.

A Christmas Quagmire

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Loading equipment onto Heavy Equipment Transporters (HETs) and hired commercial carriers is among the riskiest tasks a unit can perform. Trust me, I speak from firsthand experience. My unit found out just how hard this task can be when we deployed to Iraq in late 2005.

Our first big moves were planned thoroughly. The hazards were identified and assessed, and controls were developed and published in operations orders. Things went pretty well, thanks to our command ensuring the controls were briefed to the lowest level. There also was a leader present onsite during each operation.

We successfully uploaded our vehicles onto rail cars at our stateside location and downloaded them at the destination port in Kuwait. We then safely convoyed all our vehicles and equipment to a staging area as part of the initial phase of deployment. But what came during our preparation to move into Iraq caught me off guard. I soon realized I'd underestimated one of the biggest hazards we'd face in this phase of the operation—namely, the austere conditions in which we'd upload our tracked and wheeled vehicles onto HETs.

For some reason, this part of the move didn't seem like such a big deal to any of us. We'd focused on the "major" tasks like rail loading, port operations, and convoys. Things were going well, and our primary focus was the upcoming ground assault convoy into Iraq. Besides, we were all chomping at the bit to get into our future area of operations.

Most of the experienced leaders and track commanders considered HET loading "old hat" and nothing unusual. One thing struck me, though, as we began this part of our move. We'd been using improved facilities up to this point, but our current field conditions greatly increased the risk of a mishap.

We started loading our vehicles on Christmas Day, and it wasn't long before Murphy showed up to complicate things. Rain began falling steadily as our transporters arrived, and the move to get them into place and stage our tracked vehicles quickly turned into the "Christmas Quagmire." To make matters worse, our assigned HETs arrived later than expected due to poor road conditions, and we were running out of daylight fast.

When night fell, we had to position some HMMWVs so their headlights shone on the HET ramps as we loaded the vehicles. A sense of urgency hung heavy in the air. We had to get things done quickly so the transporters could get on the road and maintain movement into Iraq. The conditions were so bad we had to slow down several times to ensure the ground guides weren't running or send them to get their jackets and reflective vests.

With these factors combined, it wasn't long before we had a near miss. An M88 being driven onto a HET didn't stop at its assigned spot and almost ran over a ground guide, who had to jump off the vehicle's side to avoid being crushed. It turned out an unlicensed driver, eager to do his part, had hopped into the vehicle to load it but couldn't find the brake pedal

when he needed to stop! We suspended operations after that incident, gathered everyone together, and reviewed our controls. We then continued loading and completed the mission without an accident.

We returned to the tactical operations center later that night and developed additional controls based on our hard-learned experience. Another fleet of HETs was scheduled to arrive the next day, and we wanted to make sure they were loaded safely. The result of this meeting was a fragmentation order that required units to:

- Provide an adequate number of licensed troops for the mission
- Be prepared to provide supplemental lighting for night operations in case HET arrival was delayed
- Modify the standard uniform for loading (helmet, gloves, reflective vests, protective eyewear, earplugs, flashlights, and wet and cold weather gear)
- Designate specific areas for loading in track parks and establish traffic flow and control points, as well as prohibit neutral steers to keep the ground as level as possible for loading
- Require unit leaders to ensure a continuous presence, provide pre-loading safety briefings, and enforce controls onsite

We also published an accompanying sheet that focused on ground guide and driver procedures to assist with these briefings. The rest of our operations went well, but there were a few adjustments that had to be made along the way. A few blood pressure spikes later, we arrived safely in Iraq.

The most important lesson I learned that night was never underestimate the effects of the desert environment on a "routine" operation. All our previous loading and unloading missions and movements had been uneventful, but they took place in hard-stand facilities with good lighting and support. Basically, we were lulled into a false sense of security. The desert terrain allowed plenty of room but provided nothing else. Add a little darkness, some bad weather, and pressure to complete the mission on time, and the risk increased dramatically.

I hadn't thoroughly assessed the risks for this routine operation using mission, enemy, terrain and weather, troops available, time available, and civil considerations (METT-TC). My main focus was ground guide safety; I didn't adequately consider the effects of the environment, time constraints, or weather. I'll remember the controls from our Christmas lesson in the future—view the situation a little more holistically using METT-TC, and keep in mind that routine loading of heavy vehicles in the desert is the stuff of holiday fables.

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Before you load that HET ...

- Conduct a safety brief for all personnel
- Wear the right uniform: helmet, reflective vest, gloves, eye and hearing protection, flashlight, and wet or cold weather clothing
- Never walk or stand between running or moving vehicles
- Ground guide from the front quarter (45 degrees)
- Never guide a vehicle on or off the HET with your back to the ramp or another vehicle; instead, stand on top of the ramp or to the side
- Use standard hand and arm signals, with only one person providing signals to the driver
- Never walk backward while ground guiding; stop the vehicle and reposition yourself
- Keep your "head on a swivel" and watch out for your buddy
- Don't stand around the HETs if you're finished ground guiding—get out of the area
- Allow only licensed drivers to operate vehicles
- Drivers will stop their vehicle if they can't see the ground guide or don't understand the signals

Who Needs A Seatbelt?

ACCIDENT INVESTIGATION DIVISION
U.S. Army Combat Readiness Center

It's no secret the majority of Soldiers serving in Operation Iraqi Freedom don't wear seatbelts while conducting vehicle operations. Needless to say, most Soldiers who don't wear seatbelts in theater probably won't wear them when they return home. Although Army regulations, local policies, and standing orders require seatbelt use in tactical vehicles, many Soldiers continue to do just what they did in combat—drive or ride without their restraint systems. This negative habit transfer directly contributed to the death of one Soldier and minor injury to another in a recent vehicle rollover.

The two Soldiers, a private first class and a sergeant, had just begun barrier checks in an M998A1 HMMWV in support of an advanced platoon live fire exercise. The private was driving, and the sergeant was serving as the vehicle commander (VC). About 15 minutes into the mission, the private was speeding and lost control of the HMMWV on a tank trail. The vehicle ran off the trail into a small drainage ditch and rolled over.

Neither Soldier was wearing his seatbelt. The sergeant was ejected into the path of the rolling vehicle when its left-front side hit the edge of the ditch. The HMMWV came to rest upside down, with the windshield frame and right-side tarp support on top of the sergeant's head and neck. He was fatally injured. The private also was ejected and landed about 20 feet away, well clear of the vehicle. He suffered injuries to his head and right shoulder.

Investigators determined that had the sergeant and private been wearing their seatbelts, the severity of their injuries would've been greatly reduced and the VC would've survived the accident. Interviews conducted by the investigators revealed seatbelt use wasn't enforced at the user level through the platoon chain of command. They justified their position by stating their Soldiers didn't wear seatbelts in Iraq because doing so didn't make tactical sense. Although seatbelt use is required in all Army vehicles, the platoon leadership ignored the mandate because of their perceived necessity to egress quickly from vehicles during direct action, battle drills, or improvised explosive device (IED) or vehicle-borne IED attacks.

Composite Risk Management (CRM) helps commanders and leaders blend tactical and accidental hazards so they can develop agile and enforceable controls. They then can embed the controls in their military decision-making process. If the driver, VC, and platoon leaders in this accident had thought about their operational environment, recognized the accidental hazards, and then applied seatbelt use as a control, the Army wouldn't be short yet another Soldier today.

Everyone in your formation has a role in properly implementing CRM, which links the actions of every Soldier, NCO, and leader. When done right, the process will function as a multi-layered approach that can dramatically increase the effectiveness of control measures and modify negative behaviors in your formations. Many of those negative behaviors probably were developed in combat.

Keep in mind that just because a task was done a certain way in theater doesn't mean it was the right way there or back at home station. Leaders must present a united front and apply unwavering pressure to ensure all Soldiers employ tactics, techniques, and procedures commensurate with their environment. CRM takes into account these unique environments and allows us to develop controls specifically designed to mitigate risks to the lowest level possible.

The Army's modern risk management tools and techniques can be found on the Army Combat Readiness Center's Web site at https://crc.army.mil. Visit the site often to learn how you can use CRM in your formation.
Own the Edge!

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Thrown For A Loop

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Everyone in the military has their reasons for joining the service. I volunteered early because I needed to support my growing family, but I almost ended my career and my life when I was only 19. Like so many Soldiers before and after me, I rolled a HMMWV.

I was an E-3 driver instructor for HMMWVs and 5-ton trucks. I'd been training personnel for about 18 months without an accident, and I got somewhat overconfident and complacent—even a little cocky. On this particular day I decided to try something

different while demonstrating the HMMWV's off-road capabilities to a group of students. What I didn't realize, however, was "something different" and "off-road" together can be a potent mix for disaster.

I was bored with the same old routine, so I steered the HMMWV to an unfamiliar area, intent on impressing my student with my amazing driving skills. It wasn't long before I had that HMMWV wide open, but a 6-foot drop on the other side of a hill brought us to an abrupt stop. The HMMWV did a nosedive and rolled over before coming to rest on its roof. My passenger and I were hanging upside down from our seatbelts, somewhat stunned but thankfully alive.

I was extremely fortunate my student and I weren't severely injured. The skin over one of my kneecaps was peeled back and exposed the bone underneath, so I spent a day in the hospital getting stitches and another 18 on bed rest. I spent most of that time thinking about what could've happened and what repercussions the accident would have on my career. I thought I'd have to pay for damages to the HMMWV and lose some rank for sure. Neither happened, but I learned some valuable lessons that day.

If it hadn't been for our seatbelts, both my student and I would've been thrown around inside the HMMWV or ejected during the rollover. Either way, we probably would've been seriously injured or killed. Hanging upside down from a seatbelt is no fun, but it's a lot better than being paralyzed or dead. Also, speed limits and driving ranges are established for a reason. I knew speeding in a HMMWV on ground I wasn't familiar with was dangerous, but I wanted to inject a little excitement into a job that had become boring. Believe me, there are better ways to get an adrenaline rush than a HMMWV rollover. Don't try it!

Back then, I really wasn't concerned with Composite Risk Management (CRM). However, if I'd used CRM, stayed on familiar terrain, and kept the HMMWV at a safe speed, I wouldn't have been sweating over how I'd take care of my family later. Familiarize yourself with the CRM process and apply it to all your activities, whether you're training at home, conducting missions in theater, or blowing off steam in your downtime. Your unit and your family are relying on you to make it home.

Now that I'm a little older, I can look back and see the dumb things I did. At 19 I was unstoppable—there wasn't anything I couldn't do and I'd never be in an accident doing it. Of course, I was wrong. Learn from my mistake and don't let overconfidence or cockiness cloud your judgment, because your next "good time" could be your last!

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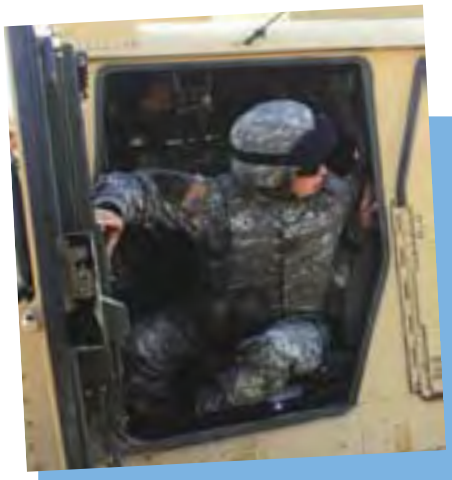

The door striker should never be removed from M1114 HMMWV doors. Some vehicles have been found in theater with the strikers removed, a practice that's not recommended because:

- Without the latch, the hinges alone support the door's weight. The hinges can fatigue and fail, causing the door to sag.
- The combat locks can't be engaged from outside the vehicle without the door striker installed.
- Army testing has shown that additional forces are placed on the combat lock nuts when the striker is removed, possibly causing the nuts to loosen when driving on rough terrain.

These problems occur only if the door striker is removed. A redesigned automotive latch, part of the door upgrade associated with FRAG Kit 5 (Objective Door), will begin production in August 2006 and be fielded as units become available.

Beat the Heat

JULIE SHELLEY
Managing Editor

The "dog days" of summer are here, and our Soldiers are serving in some of the hottest locations on Earth. For example, the average daily temperature in Baghdad is about 110 ˚F during July and August. And that's just the average. As any Soldier that's been there will tell you, it's really a lot hotter under the noonday sun when you're wearing full battle rattle! Temperatures in Afghanistan generally reach the high 90s or low 100s during summer too, similar to stateside locations in the Deep South.

Considering it's hot pretty much everywhere now and will be for a while longer in many locations, let's take a quick look at the basic principles of heat injury prevention. More than 1,700 heat injuries and 6 heat-related deaths were reported Army-wide during Fiscal Year 2005. The vast majority of those injuries resulted from heat exhaustion, although more than 250 were attributed to heatstroke.

Preventing heat injuries and heat-related deaths is every commander's and leader's responsibility. Commanders and NCOs must ensure the following preventive measures are carried out through their formations:

- All Soldiers should drink a maximum of 1.5 quarts of water per hour, depending on environmental conditions, to ensure adequate hydration. Remember coffee, tea, juices, and sodas are not a substitute for water and can increase urine output.
- Soldiers and trainees should never empty their canteens to lighten a load.
- Soldiers should monitor their hydration levels by noting their urine color, which should be relatively clear or light in shade.
- Soldiers should eat all their meals during scheduled breaks but never use salt tablets. All meals should contain adequate salt before consumption.
- Soldiers should be allowed enough time to eat meals and drink water.
- Enforce battle buddy checks by ensuring battle buddies are aware of each other's eating, drinking, and urination frequency.
- Ensure identified controls are in place at all times.
- Update wet bulb globe temperature hourly when the ambient temperature is greater than or equal to 75 ˚F.
- Soldiers should adhere to established work/rest cycles in all heat categories and rest in shaded areas. Extended rest periods should be allowed after strenuous activities.
- A designated leader should be in place at all times to observe and react to heat injuries.

It's important commanders and NCOs remember they can effectively eliminate most heat injuries simply by placing emphasis on prevention. Their Soldiers are looking at them to set the standard not only in heat injury prevention, but in all other areas of risk management as well. For some good ideas on heat injury prevention programs, check out the U.S. Army Center for Health Promotion and Preventive Medicine's Web site at http://chppm-www.apgea.army.mil/heat/. Beat the heat and Own the Edge!

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Who You Pointin' At?

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Weapons are designed to disable designated enemy personnel and, in the hands of properly trained Soldiers, accomplish this task exceptionally well. We must remember, however, a weapon is the instrument of its operator. It will dutifully shoot in the direction the operator points it. Therein lies the problem of negligent discharges, which are always unacceptable but nonetheless tragic when a Soldier is injured or killed.

Soldiers in sustained combat operations handle their weapons frequently. Before deployment, they must undergo repetitive, intensive training at home to prepare for the increased weapons exposure in theater. Manipulating both personal and vehicle-mounted loaded weapons is pretty routine now for every Soldier, regardless their occupational specialty.

Since the beginning of Fiscal Year 2005, nine Soldiers have died in negligent discharge incidents. The majority of these didn't happen under stressful combat conditions; in fact, several occurred during clearing or cleaning in garrison environments. Here's a brief look at three on-duty fatalities since October 2005:

• A private in a CONUS location was killed when an M2 .50 caliber machine gun discharged into his right hip. The Soldier was placing the M2 in a HMMWV when it became stuck. The private then pushed the weapon with his hip, at which time it discharged. The private died at a local hospital.

• A private first class died after being struck in the neck by a round from an M4. A specialist was handling the weapon and pointed it at the private before pulling the trigger. The Soldiers had just completed a squad training exercise at a CONUS location.

• A sergeant suffered a fatal gunshot wound to the head after a round fired from his M9 pistol. The sergeant was standing in a tent in theater when another Soldier told him the weapon was still loaded with a magazine. The sergeant replied the weapon wasn't loaded, pointed the weapon at his chin, and pulled the trigger. The round exited through the top of the Soldier's head.

Perhaps what's most heartbreaking about these and other negligent discharge incidents is that, almost without fail, they were all preventable. Weapons safety is taught and emphasized on a daily basis from the beginning of a Soldier's career. How, then, are these negligent discharges occurring? One possibility is weapons handling has become an everyday occurrence for most Soldiers. An M4 rifle or M9 pistol is currently a basic component of the garrison and deployed uniforms.

Another possibility for these incidents is some first-level leaders have become complacent in the repetitive nature of training their troops on weapons handling procedures. It's incumbent on leaders at every level to ensure the basics of correct weapons handling are taught and enforced throughout their formations. NCOs have an even greater responsibility since they're usually present during critical phases of weapons operations such as loading and clearing.

Several safety procedures and mechanisms exist to prevent negligent discharges. One that's often overlooked, however, is also almost 100 percent effective—basic muzzle awareness! If a Solider should bypass every other procedural and mechanical

safety measure other than making sure his weapon is always pointed in a safe direction, it's unlikely anyone will get hurt if the weapon fires. Of course, simply being careful about muzzle direction doesn't give a Soldier permission to skip the other steps of proper weapons handling. Leaders also must constantly reinforce muzzle awareness to the point it becomes habit for their Soldiers.

Likewise, Soldiers must get in the mindset that any weapon, whether it's firmly locked in an armory, has its magazine out, is lying with its chamber open on a bunk, or being carried on a combat patrol, is capable of killing them. Soldiers must be trained to be skeptical no matter how benign a weapon looks. A weapon is a killing machine that's waiting for an opportunity to do so.

These principles apply to those working around weapons as well. Bystanders losing situational awareness or taking proper weapons handling for granted could find themselves on the wrong end of an inadvertently pointed weapon. By remaining cognizant of their surroundings, other personnel will allow Soldiers to avoid potentially dangerous situations and also provide the opportunity for corrective training.

Current training and deployment requirements dictate Soldiers develop and maintain weapons proficiency. The law of averages indicates that as realistic training and combat deployments continue, so too will the relative occurrence of negligent discharges. It's unlikely we'll ever be able to prevent all negligent discharges, but proper training and reinforcement can limit the damage and injury they cause. Keep your weapon in a safe direction and Own the Edge!

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The Basics of Weapons Handling

- **Treat every weapon as if it's loaded. When first handling a weapon, especially if it's not your own, look to see if the chamber is clear. Also ensure all weapons are cleared before handling.**
- **Control the muzzle—keep it pointed downrange or in a safe direction at all times.**
- **Don't touch the trigger unless you intend to fire the weapon.**
- **Unload the weapon at times and in places you don't expect to use it, such as in dining facilities or secure areas.**
- **Leaders must ensure weapons handling, weapons status, and weapons clearing procedures are in place, communicated to all personnel, routinely reviewed, and ruthlessly enforced throughout their formations. The Army's official "Weapons Handling Procedures" guidebook can be found on the Army Combat Readiness Center's Web site at https://crc.army.mil/Tools/handbooks/ground/safeweaponhandling.pdf.**

Buyer Beware! Part Deux

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Soldiers and their families often are overwhelmed by advertisements for commercial off-the-shelf (COTS) items claiming to offer "better protection" or "a more comfortable fit" than the Army's standard-issue items. These ads appear in commercial military publications and Web sites, and major news networks have featured stories about families buying items such as body armor, gunner's slings, camouflage suits, and even vehicle bumpers for their Soldiers in theater. Since more and more of these items are being pushed to Soldiers, their families, and the public, the Army Combat Readiness Center (CRC) felt the need to follow up on a COTS article entitled "Buyer Beware!" published in the March 2006 *Countermeasure*.

The Army employs a group of professionals whose sole purpose is to purchase the most capable equipment—be it vehicles, personal protective equipment, or even tents—for Soldiers to complete their missions safely and effectively. Before items are bought and distributed to Soldiers, another group of personnel rigorously tests the equipment for operational sufficiency and safety. This process ensures the best equipment available is procured to fill as many Soldier needs as possible. COTS items, however, aren't always tested according to the Army's thorough standards.

An example of these standards is an ongoing Army study that compares two fielded helmets. Researchers are determining how to combine the best characteristics of the two current helmets to develop a single helmet Soldiers can use in or out of a combat vehicle, with a focus on integrating communications gear and crash protection. To date, 17 separate tests have been performed on prototype helmets, all to ensure the final product is safe, effective, and comfortable for the warfighter. These tests are expensive and very precise for a reason. All findings are important; you can't focus on selective issues while ignoring others.

One COTS item that's received media attention lately is a set of suspension pads designed for use in the Personal Armor System, Ground Troops (PASGT) helmet. A non-military organization

is soliciting donations to buy and send these pads to service members in Iraq and Afghanistan. That organization claims the pads, when installed in the PASGT helmet, provide impact protection equal to or better than a Department of Transportation-approved motorcycle helmet.

Although that claim might sound good on the surface, there are several questions regarding the pads that must be asked. Will the pads interfere with the wearer's ability to communicate with other troops? Will the helmet's fit change and possibly fatigue the wearer during extended missions? Specific tests must be conducted to answer these and other questions before Soldiers can safely install and use the pads.

Here's a recent example of the dangers some COTS items pose to Soldiers. Two Soldiers pulling guard duty in an observation tower were killed when their Ghillie suits caught fire. It appears the suits had been purchased off the Internet, and their fire retardant and flame resistant properties weren't up to Army standards. The deceased Soldiers' chain of command examined the remaining suits, which "went up in a New York second" when exposed to a small ignition source like a match.

The Army hadn't tested the particular Ghillie suits mentioned above, but it has examined numerous COTS items that didn't make the grade. Some items that have been tested by the Army, however, were found to actually improve current systems. These items include a version of a helmet suspension system that passed form, fit, and function tests and now is being fielded to troops. In this case, the Army procurement community determined the suspension system was the best item available for Soldiers and is working hard to get the kits to the field—a process they take with any item they feel is worthwhile and necessary.

The acquisition process often is superseded when COTS items are purchased. Regardless who purchased or donated the equipment, leaders assume full responsibility for the safety, training, standards, serviceability, repair, maintenance, and logistics of any non-standard items their Soldiers use. Just because a product is advertised in a military publication or an ad features photos of Soldiers in uniform using a particular item doesn't mean it has the Army's blessing. Leaders must always be aware of this fact and prohibit their Soldiers from using untested COTS equipment.

The Composite Risk Management (CRM) process isn't just for mission planning—it applies to buying or using COTS items too. Among other questions, leaders should ask what risks might outweigh potential benefits offered by a COTS product to get an informed, "big picture" view of whether the item is really worth the money, time, and lives of the Soldiers using it. The CRC's Web site, https://crc.army.mil, has the tools leaders need to train and integrate CRM at every level of their formations.

The CRC isn't here to slow you down. Rather, we're here to ensure your safety whether you're in theater or in garrison at home. Losing a Soldier to a preventable accident and excusing it as the cost of doing business is unacceptable. Keep your Soldiers ready and equipped so they can Own the Edge!

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Halfway There in FY06

It's time for us to take a look at how we're doing as an Army regarding ground accidents thus far in Fiscal Year 2006 (FY06). After nearly 5 years in the Global War on Terrorism, our Soldiers are continuing their missions in Iraq, Afghanistan, and other operational theaters. Everyone knows optempo is high, but what do the accident numbers tell us and what can we do better?

This article provides a review of Army ground accidents during the first half of FY06 up to 18 May 2006. (Although these statistics are accurate as of that date, late reports and changes to existing reports might alter figures and findings somewhat in the coming months.) There were 750 Class A through C ground accidents reported during the first 6 months of FY06, costing the Army $42.5 million. A total of 120 Class A ground accidents were reported during this timeframe, resulting in 108 Army military fatalities.

There were 469 Class A through C Personnel Injury (PI) accidents, representing 63 percent of the total. Army Motor Vehicle (AMV) accidents accounted for 11 percent of the total at 85 Class A through C accidents. A total of 158 Privately Owned Vehicle (POV) accidents were reported during this timeframe for a 21-percent share of the Class A through C numbers. When looking at Army military fatalities, however, the picture changes dramatically. Almost half—49 percent, or 53—of Army military fatalities occurred in POVs. A quarter of all fatalities, or 27, were attributed to PI accidents; and 21 percent, or 23, of fatalities occurred in AMVs. (This article will not discuss POV accidents because a separate publication, *Impax*, covers POV issues.)

Personnel Injury (PI)

PI accidents accounted for 63 percent, or 469, of Class A through C accidents and 23 percent, or 27, of Class A accidents during the first half of FY06. These incidents were responsible for 27 Army military fatalities and 454 non-fatal injuries that resulted in at least 1 lost workday and/or permanent partial or permanent total disabilities. A total of 86 Class A through C PI accidents occurred among Soldiers participating in Operations Iraqi and Enduring Freedom.

On-duty incidents accounted for 72 percent, or 340, of Class A through C PI accidents, resulting in 15 Army fatalities and 337 non-fatal injuries. The most common activities reported in these accidents include parachuting, 21 percent; physical training (running, jogging, confidence course, etc.), 16 percent; human movement (walking, running, entering or exiting vehicles, etc.), 13 percent; maintenance, repair, or servicing activities, 10 percent; and combat soldiering (hand-to-hand combat, infiltrating, assaulting, retreating, etc.), 8 percent.

Off-duty accidents accounted for 28 percent, or 129, of Class A through C PI accidents, with 12 Army military fatalities and 117 non-fatal injuries reported. The most common activities reported in these accidents include sports activities (basketball, skiing, snowboarding, football, water sports, etc.), 40 percent; and human movement (walking, etc.), 22 percent.

Army Motor Vehicle (AMV)

During the first half of FY06, AMVs were involved in 11 percent, or 85, of Class A through C accidents and 22 percent, or 26, of Class A accidents. A total of 23 Army military fatalities and 54 non-fatal injuries resulted from these incidents. The majority of these accidents, 71 percent, or 60, occurred in tactical vehicles. The HMMWV was the most frequently reported accident AMV at 45 percent, or 38 incidents, with 18 fatalities and 28 non-fatal injuries reported for all variants. The M1114 accounted for 22 of the 38 HMMWV accidents. At 18 percent, Government sedans and station wagons were the most frequent commercial vehicles involved in AMV accidents. About half the Class A through C AMV accidents and 81 percent of Class A AMV accidents occurred in theater.

Army Combat Vehicle (ACV)

ACV accidents accounted for 1 percent, or 9, of Class A through C accidents and 4 percent, or 5, of Class A accidents during the first half of FY06. These accidents resulted in two Army military fatalities and three non-fatal injuries. All but one of the Class A through C accidents and all five Class A accidents involved Soldiers in Iraq or Afghanistan. Three accidents were reported in Bradley Fighting Vehicles; two in M1A2 tanks; and two in Strykers.

Explosive and fire accidents

During the first half of FY06, explosive and fire accidents accounted for 1 percent, or 8, of Class A through C accidents and 2 percent, or 2, of Class A accidents. Five fire and three explosive accidents were reported during this period, resulting in two Army military fatalities and five non-fatal injuries. One Soldier died when his tent caught fire, and another was killed when an 81 mm high explosive round detonated in a mortar tube. The 81 mm accident injured four additional Soldiers.

Conclusion

During the first half of FY06, PI accidents accounted for the majority of Army military injuries. However, as with previous years, POV accidents continue to claim more Soldiers than any other single accident category. Most of these accidents didn't have to happen. It's critical individual Soldiers and leaders at every level take positive action to prevent losses by integrating Composite Risk Management in their on- and off-duty activities. Check out the Army Combat Readiness Center's Web site at https://crc.army.mil to find valuable Army tools that will help you Own the Edge!

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AMV

Class A

- Soldier was killed when the M35A3 cargo truck he was riding in overturned after hitting a dirt berm on a curve. The Soldier was trapped beneath the vehicle and unable to escape when the truck caught fire. Nine other Soldiers suffered minor injuries. The accident occurred during the mid-morning.

- Soldier died when the M998 HMMWV he was riding in rolled over on a tank trail. The crew was supporting a live fire training exercise and the deceased Soldier, who was ejected, was serving as the vehicle commander. The driver suffered minor injuries. Neither Soldier was wearing their seatbelt. The accident occurred during the early morning.

- A Soldier suffered minor injuries and a recruiting applicant was killed when their GOV hit an overpass guard rail and overturned onto an access road below. The Soldier was driving the applicant, who was ejected from the vehicle, home. Seatbelt use by the Soldier was not reported. The accident occurred during the late afternoon.

- A local national suffered fatal head injuries when the M1114 HMMWV he was riding in ran off the roadway into a steep embankment and rolled over. The HMMWV crew was under blackout drive at the time of the accident. The local national was sitting behind the driver and was ejected when the vehicle overturned. No Soldier injuries were reported. The accident occurred during the mid-evening.

A civilian driver was killed when their vehicle struck the side of a HEMTT fueler. The HEMTT driver was attempting to turn the vehicle around when it was hit by the civilian car. Neither Soldier in the HEMTT was injured. The accident occurred during the late evening.

Class B

Three Soldiers were hospitalized when their M1117 Armored Security Vehicle rolled over into a ditch. The vehicle was part of a convoy traveling at about 40 mph when one of its tires blew, causing the accident. The nature of the Soldiers' injuries was not reported. The accident occurred during the early morning.

Class B (Damage)

Seven forklifts valued at $300,000 and parked at a field training exercise site were destroyed by a brush fire. The origin of the fire was not reported. The accident occurred during the early afternoon.

Personnel Injury

Class A

Soldier suffered fatal injuries when he was struck in the neck by a snapped chain. The Soldier was part of a group attempting to free a contractor truck that was stuck in loose gravel. The Soldiers connected two trucks with chains to the stuck truck, but one of the chains broke when the two vehicles began moving forward. The Soldier received first aid from medics onsite and was transferred to a local hospital, where he later died. The accident occurred during the early afternoon.

Soldier collapsed and died following a unit PT run. The Soldier was transported to a local hospital and pronounced dead. No other details were reported. The accident occurred during the mid-morning.

Class C

Soldier broke his ankle while participating in a road march. The Soldier stepped

Seatbelt Success Stories

Spotlighting Soldiers who wore their seatbelts and walked away from potentially catastrophic accidents

Class D

One Soldier suffered minor hand injures and another was not injured when their M1088 fuel tanker ran off the roadway over the side of a bridge and rolled over into a canal. The driver fell asleep at the wheel and lost control of the vehicle during an extended convoy. Both Soldiers were wearing their seatbelts and all personal protective equipment. The accident occurred during the early morning.

One Soldier suffered minor injuries but the rest of his crew was unharmed when their M1114 HMMWV rolled over during a security patrol mission. The patrol was traveling along an unfamiliar route on unimproved roads when the accident HMMWV slid uncontrollably in a curve. The HMMWV slid down a 3- to 4-foot drop-off and overturned on its top. The driver's platoon sergeant had warned him to slow down before the accident. All crewmembers reportedly were wearing their restraint systems. The accident occurred during the mid-afternoon.

Soldier escaped without injury when the M997 HMMWV ambulance he was driving rolled down a 25- to 35-foot embankment. The Soldier was following another HMMWV when he swerved the vehicle to avoid some low-hanging tree branches, sending the passenger-side tires off the roadway. The HMMWV then overturned and slid down the embankment. The Soldier was wearing his seatbelt and helmet. The accident occurred during the mid-evening.

Class A

Soldier was killed when the M35A3 cargo truck he was riding in overturned after hitting a dirt berm on a curve. The Soldier was trapped beneath the vehicle and unable to escape when the truck caught fire. Nine other Soldiers suffered minor injuries. The accident occurred during the mid-morning.

off the edge of a paved road and impacted his ankle. The Soldier was carrying a rucksack and other equipment during the march. The accident occurred during the mid-morning.

- Soldier broke his foot while running during a PT test. No other details were reported. The accident occurred during the mid-morning.

- Soldier fractured his ankle while participating in unit PT. The Soldier was running and stepped off the road course, causing him to fall onto his ankle. The accident occurred during the mid-morning.

- Soldier broke his nose while participating in an organized basketball game at a post gym. The Soldier was trying to catch a rebound when he collided with another player and hit his nose with the basketball. The accident occurred during the late evening.

WHAT WERE THEY THINKING?

RETURN OF THE SUPERHEROES

Most everyone probably knows a Soldier that thinks nothing bad can happen to him or her. They seem to have a superhero mentality that they're the strongest and the greatest at everything they do. Almost without fail, however, they're brought back to Earth with a thud, bang, or ouch. So, in honor of the comic book blockbusters of summer at the theater, we'll look at three super-Soldiers that tested their mortality on duty.

Our first pseudo-hero had a Batman complex. He was fearlessly protecting his AO in an M1026 HMMWV on a rainy, mid-afternoon police patrol. Things were slow in Gotham City, so the Soldier decided to make a little excitement of his own. He drove the HMMWV off the hardball onto a dirt road, threw the transmission into low gear, and slammed the gas. The vehicle spun around several times before one of the rear wheels caught a rutted berm, sending the Soldier and the HMMWV flipping through the air.

Luckily, our Bruce Wayne had a brief moment of brilliance and buckled his seatbelt before he went out on the patrol. Between the seatbelt and the helmet he was wearing, the Soldier was able to walk away from the accident unharmed. The HMMWV, however, wasn't so fortunate and needed almost $10,000 in repairs. The Soldier had his driving privileges revoked, and his immediate chain of command had to undergo retraining in the art of supervision.

The next super-wannabe was tearing apart a wooden wall locker with his hands—yes, his hands—so we'll call him The Hulk. Apparently the motor pool had received some new furniture, and the Soldier was supposed to tear down the locker for scrap wood. However, the locker wasn't coming apart fast enough to suit our Bruce Banner, so he got mad, took a few steps back, and ran toward the locker with all his might. (The report doesn't state if he turned green or ripped off his shirt, so use your imagination on this one.)

Unfortunately, the locker fell at the moment of impact and The Hulk wasn't strong enough to keep it upright, what with his full weight forcing it to the ground. He grabbed the side of the locker just in time for the sharp edge to pin his right middle and ring fingers to the concrete floor. The Soldier found out even superheroes bleed, and he lost part of the tissue and bone on both fingers. Turns out the proper tools for disassembling the locker were within easy reach, but some Soldiers just have to do things the hard way.

Our last hapless hero was working on an M969A1 fuel tanker that must've contained kryptonite. The Soldier was still in Clark Kent mode when he jacked up the tanker to replace some leaf springs. Not one but two mere mortals working in the maintenance bay told the Soldier the jack stand wasn't centered correctly, but Superman always knows best and left it in its original location. A little later he needed more maneuver room and repositioned himself under the tanker, a task that required him to move the jack stand to yet another incorrect spot. The Soldier couldn't get out from under the tanker quickly enough, however, when the jack collapsed.

Even the real Superman might have trouble lifting a 118-ton fuel tanker trailer. Needless to say, the Soldier couldn't hold it up either, and his hand was crushed between the trailer and leaf springs. After 3 days in the hospital, 4 months away from work, and pain even Lois Lane couldn't take away, the Soldier rejoined his unit somewhat wiser in the ways of vehicle maintenance.

What can we learn from these moments of superhuman stupidity? First, Soldiers are still human, even if they feel 10 feet tall and bulletproof. These three Soldiers were lucky they weren't killed or permanently disabled during their respective accidents. Also, HMMWVs might be pretty neat, but Batmobiles they're not. Drive them with respect. Lastly, use the right tools for the job in the right way. If someone tells you you're screwing up, they just might be right. Take off your cape, put on your uniform, and Own the Edge!

POV stats

FY06 through May 06

Class A-C accidents/Soldiers killed

Cars	97/34
Vans	0/0
Trucks	33/12
Motorcycles	75/30
Other*	8/2

*Includes tractor-trailers, unknown POVs, mopeds, ATVs and bicycles

78 total DEATHS

FY05: 95 3 year average: 78